

An Exelon Company

AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville, IL 60555

www.exeloncorp.com

Nuclear

Exelon Generation
4300 Winfield Road
Warrenville, IL 60555

10 CFR 50.54(f)

RS-05-021
5828-05-20076

March 7, 2005

United States Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Three Mile Island Nuclear Station, Unit 1
Facility Operating License No. DPR-50
NRC Docket No. 50-289

Subject: Exelon/AmerGen Response to NRC Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors"

- References:
- (1) Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," dated September 13, 2004
 - (2) GSI-191 SE, Revision 0, "Safety Evaluation of NEI Guidance of PWR Sump Performances," dated December 6, 2004

The U. S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2004-02 (Reference 1) on September 13, 2004 to request that addressees perform an evaluation of the emergency core cooling system (ECCS) and containment spray system (CSS) recirculation functions in light of the information provided in the GL and, if appropriate, take additional actions to ensure system function. Additionally, the GL requests addressees to provide the NRC with a written response in accordance with 10 CFR 50.54(f).

March 7, 2005


The request was based on identified potential susceptibility of the pressurized water reactor (PWR) recirculation sump screens to debris blockage during design basis accidents requiring recirculation operation of ECCS or CSS and on the potential for additional adverse effects due to debris blockage of flowpaths necessary for ECCS and CSS recirculation and containment drainage.

The GL requested that within 90 days of the date of the GSI-191 safety evaluation report (Reference 2), addressees provide information regarding planned actions and schedule to complete the requested evaluation. Attachment 1 provides the Exelon Generation Company, LLC (EGC) and AmerGen Energy Company, LLC (AmerGen) response to the requested information. This response addresses actions at the Byron, Braidwood, and Three Mile Island (TMI) stations. This information is being provided in accordance with 10 CFR 50.54(f). Attachment 2 provides a summary of the licensing commitments made in this GL response. This letter contains eight new commitments.

If you have any questions or require additional information, please contact Mr. Doug Walker at (610) 765-5726.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 3/7/05


Keith R. Jury
Director – Licensing and Regulatory Affairs
Exelon Generation Company, LLC
AmerGen Energy Company, LLC

Attachments: 1. Response to NRC Generic Letter 2004-02
2. Commitments

cc: NRC Regional Administrator - NRC Region I
NRC Regional Administrator - NRC Region III

Attachment 1

**Braidwood Station, Units 1 and 2
Byron Station, Units 1 and 2
Three Mile Island, Unit 1**

Response to NRC Generic Letter 2004-02

Attachment 1
Generic Letter 2004-02 Response

NRC Requested Information

All addressees are requested to provide the following information:

Within 90 days of the date of the safety evaluation report providing the guidance for performing the requested evaluation, addressees are requested to provide information regarding their planned actions and schedule to complete the requested evaluation. The information should include the following:

- (a) A description of the methodology that is used or will be used to analyze the susceptibility of the ECCS and CSS recirculation functions for your reactor to the adverse effects identified in this generic letter of post-accident debris blockage and operation with debris-laden fluids identified in this generic letter. Provide the completion date of the analysis that will be performed.
- (b) A statement of whether you plan to perform a containment walkdown surveillance in support of the analysis of the susceptibility of the ECCS and CSS recirculation functions to the adverse effects of debris blockage identified in this generic letter. Provide justification if no containment walkdown surveillance will be performed. If a containment walkdown surveillance will be performed, state the planned methodology to be used and the planned completion date.

EGC and AmerGen Response:

- (a) The analyses required for evaluating the susceptibility of the emergency core cooling system (ECCS) and containment spray system (CSS) recirculation functions to the adverse effects identified in the GL will be completed by September 1, 2005. If a strainer modification will be required, a preliminary debris head loss analysis will be completed by September 1, 2005. The final debris head loss analysis will be completed as part of the strainer modification process (see Attachment 2 Commitment). EGC and AmerGen will adopt the NEI-04-07 Methodology Guidance Report (Attachment Reference 1) as approved in the NRC SER to the greatest extent possible. Details of the methodology will be provided in the GL response that is due September 1, 2005.

The analyses for each plant will, in summary, address the following major areas:

- Pipe Break Characterization
- Debris Generation
- Latent Debris Accumulation within Containment
- Debris Transport to the Sump (plan to utilize Computational Fluid Dynamics methods)
- Head Loss as a Result of Debris Accumulation
- Analytical Refinements
- Debris Source Term Reduction
- Sump Structural Analysis
- Upstream Effects of Debris Accumulation

Several industry efforts are under way to evaluate coating failures, the chemical precipitation effects of debris accumulation, and the downstream effects of debris-laden fluid. EGC and AmerGen evaluations addressing these effects may be completed after September 1, 2005, depending on the schedule for testing and availability of industry guidance on each subject. To the extent that information from this effort becomes available, EGC and AmerGen will utilize it as part of the analysis, which is to be completed by September 1, 2005. EGC and AmerGen will clearly delineate in our September response which aspects still require further analyses.

- (b) The EGC and AmerGen plants have not completed containment walkdown surveillances in support of the analysis of the susceptibility of the ECCS and CSS recirculation functions to the adverse effects of debris blockage as of the date of this letter. Preliminary walkdowns of representative areas of the containment at each station have been performed in order to assist with scoping the upcoming analysis and assessment efforts. EGC and AmerGen plants are scheduled to complete these walkdowns during the upcoming refueling outages. The schedule for these walkdowns is provided in the Attachment 2 commitments. The design of the Byron and Braidwood stations is such that the containment design and layout is virtually identical for a given unit at both stations (i.e., the Unit 1 containment layout at both stations and Unit 2 containment layout at both stations are virtually the same). Consequently, our plan is that the second unit walkdowns in the sequence (i.e., Byron Station, Unit 2 and Braidwood Station, Unit 1) will undergo a walkdown of sufficient scope to confirm that significant differences do not exist. The comprehensive latent debris sampling and characterization will be done at all of the units.

The walkdown surveillance process and findings will be documented in a format suitable for use as design input to the previously discussed analysis. The walkdowns will be performed using guidance provided in NEI 02-01 (Attachment Reference 3). In addition, the walkdown will include sampling for latent debris using guidance in NEI 04-07 and the NRC SER.

Access to the Three Mile Island (TMI) Station containment is not expected to be feasible until the refueling outage planned to commence in October 2005. Since this is after the September 1, 2005 response deadline, the aforementioned analysis for TMI will be completed based on available plant information, drawings, and containment walkdown information collected to date. The walkdown performed previously did not indicate any significant deviations from the available plant information and drawings. The results of the formal walkdown will be used in the final analysis and modifications for resolution of GSI-191 at TMI.

References:

1. NEI 04-07, Volume 1 – Pressurized Water Reactor Sump Performance Evaluation Methodology, December 2004.
2. NEI 04-07, Volume 2 – Safety Evaluation by the Office of Nuclear Reactor Regulation Related to NRC Generic Letter 2004-02, December 6, 2004.
3. NEI-02-01, “Condition Assessment Guidelines: Debris Sources Inside PWR Containments,” September 2002

Attachment 2

**Braidwood Station, Units 1 and 2
Byron Station, Units 1 and 2
Three Mile Island, Unit 1**

Commitments

The following table identifies those actions to which EGC and AmerGen have committed in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	Scheduled Completion Date
If a strainer modification is required, Braidwood Station will complete a preliminary debris head loss analysis by September 1, 2005. The final debris head loss analysis will be completed as part of the strainer modification process in accordance with the NRC schedule for GSI-191 resolution.	December 31, 2007
If a strainer modification is required, Byron Station will complete a preliminary debris head loss analysis by September 1, 2005. The final debris head loss analysis will be completed as part of the strainer modification process in accordance with the NRC schedule for GSI-191 resolution.	December 31, 2007
If a strainer modification is required, TMI Station will complete a preliminary debris head loss analysis by September 1, 2005. The final debris head loss analysis will be completed as part of the strainer modification process in accordance with the NRC schedule for GSI-191 resolution, and this analysis will include any additional impact found in the containment walkdown to be performed in November 2005.	December 31, 2007
Byron Station will complete the containment walkdown surveillance for potential debris sources during the next scheduled refueling outage for Unit 1.	May 31, 2005
Byron Station will complete the containment walkdown surveillance for potential debris sources during the next scheduled refueling outage for Unit 2.	December, 31 2005
Braidwood Station will complete the containment walkdown surveillance for potential debris sources during the next scheduled refueling outage for Unit 1.	June 30, 2006
Braidwood Station will complete the containment walkdown surveillance for potential debris sources during the next scheduled refueling outage for Unit 2.	June 30, 2005
TMI Station will complete the containment walkdown surveillance for potential debris sources during the next scheduled refueling outage for Unit 1.	January 31, 2006